

trated in FIG. 4B. In this manner, a user may be given tactile feedback relating to entered information and also visual feedback.

[0066] In further examples, the “2” key (112B) may be associated with the letters “a,” “b” and “c,” in which case, three successive inputs on touch sensitive cover 410 may be sensed while the user’s finger is determined to be located on key 112B, in order for position sensing logic 340 to determine that a “c” is the desired character to be entered by a user (block 510). In this example, heating layer 440 may be activated (block 520) after each successive input of the 112B key, in order to provide tactile feedback to the user that each successive key input has been received. That is, the user may receive three separate vibrations/physical indications indicating that the 112B key was pressed three separate times.

[0067] It should be understood that although layer 430 has been described as a paraffin layer, it could alternatively include other substances, gels, etc. that expand when heated. Although no particular temperatures associated with the heating were described, such temperatures and other parameters could be determined based on the description/guidance given herein.

CONCLUSION

[0068] Implementations consistent with the principles described herein may provide tactile feedback to a user via a keypad that includes a single surface or cover.

[0069] The foregoing description of preferred embodiments of the embodiments provides illustration and description, but is not intended to be exhaustive or to limit the embodiments to the precise form disclosed. Modifications and variations are possible in light of the above teachings or may be acquired from practice of the embodiments.

[0070] While a series of acts has been described with regard to FIG. 5, the order of the acts may be modified in other implementations consistent with the principles of the embodiments. Further, non-dependent acts may be performed in parallel.

[0071] It will be apparent to one of ordinary skill in the art that aspects of the embodiments, as described above, may be implemented in many different forms of software, firmware, and hardware in the implementations illustrated in the figures. The actual software code or specialized control hardware used to implement aspects consistent with the principles of the embodiments is not limiting of the embodiments. Thus, the operation and behavior of the aspects were described without reference to the specific software code—it being understood that one of ordinary skill in the art would be able to design software and control hardware to implement the aspects based on the description herein.

[0072] Further, certain portions of the embodiments may be implemented as “logic” that performs one or more functions. This logic may include hardware, such as hardwired logic, an application specific integrated circuit, a field programmable gate array or a microprocessor, software, or a combination of hardware and software.

[0073] It should be emphasized that the term “comprises/ comprising” when used in this specification and/or claims is taken to specify the presence of stated features, integers, steps or components but does not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof.

[0074] No element, act, or instruction used in the present application should be construed as critical or essential to the embodiments unless explicitly described as such. Also, as used herein, the article “a” is intended to include one or more items. Where only one item is intended, the term “one” or similar language is used. Further, the phrase “based on” is intended to mean “based, at least in part, on” unless explicitly stated otherwise.

What is claimed is:

1. A mobile communication device, comprising:
 - a keypad assembly comprising:
 - a touch sensitive cover;
 - a paraffin layer;
 - a heating element; and
 - a display for displaying information; and
 - logic configured to:
 - sense an input on the touch sensitive cover, and
 - activate the heating element based on the sensed input to provide tactile feedback to a user.
2. The mobile communication device of claim 1, where the keypad assembly further comprises:
 - an enclosure that contains the paraffin layer and the heating element.
3. The mobile communication device of claim 2, where heat provided by the heating element produces an expansion of the paraffin layer to provide the tactile feedback to a user.
4. The mobile communication device of claim 1, where the logic is further configured to:
 - determine a position of input on the touch sensitive cover; and
 - provide tactile feedback to a user in an area on the touch sensitive cover associated with the determined position.
5. The mobile communication device of claim 4, where the logic is further configured to: output a character to the display based on the determined position of input on the touch sensitive cover.
6. A method, comprising:
 - receiving input on a touch sensitive surface of a device; and
 - heating a substance to produce an expansion of the substance in response to the received input, where the expansion of the substance provides tactile feedback to a user indicating that the device has received the input.
7. The method of claim 6, further comprising:
 - sensing the input on the touch sensitive surface by a capacitive, resistive or inductive film.
8. The method of claim 7, where the receiving input on a touch sensitive surface comprises:
 - detecting a finger of the user on the touch sensitive surface.
9. The method of claim 6, further comprising:
 - determining a position of the received input on the touch sensitive surface; and
 - providing tactile feedback in an area on the touch sensitive surface corresponding to the determined position.
10. The method of claim 9, further comprising:
 - displaying a character based on the determined position of the received input on the touch sensitive surface.
11. A mobile communication device, comprising:
 - means for providing a plurality of keypad elements;
 - means for sensing a position of input relative to the plurality of keypad elements;